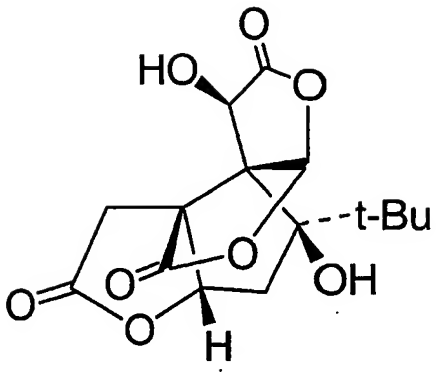
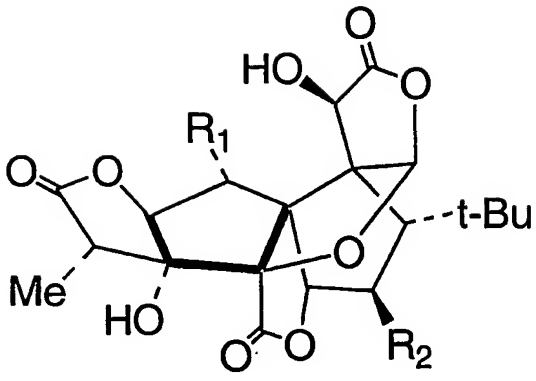
FIGURE 1



1 bilobalide



	R_1	R_2
2 ginkgolide A (GA)	H	H
3 ginkgolide B (GB)	OH	H
4 ginkgolide C (GC)	OH	OH
5 ginkgolide J (GJ)	H	OH

FIGURE 2

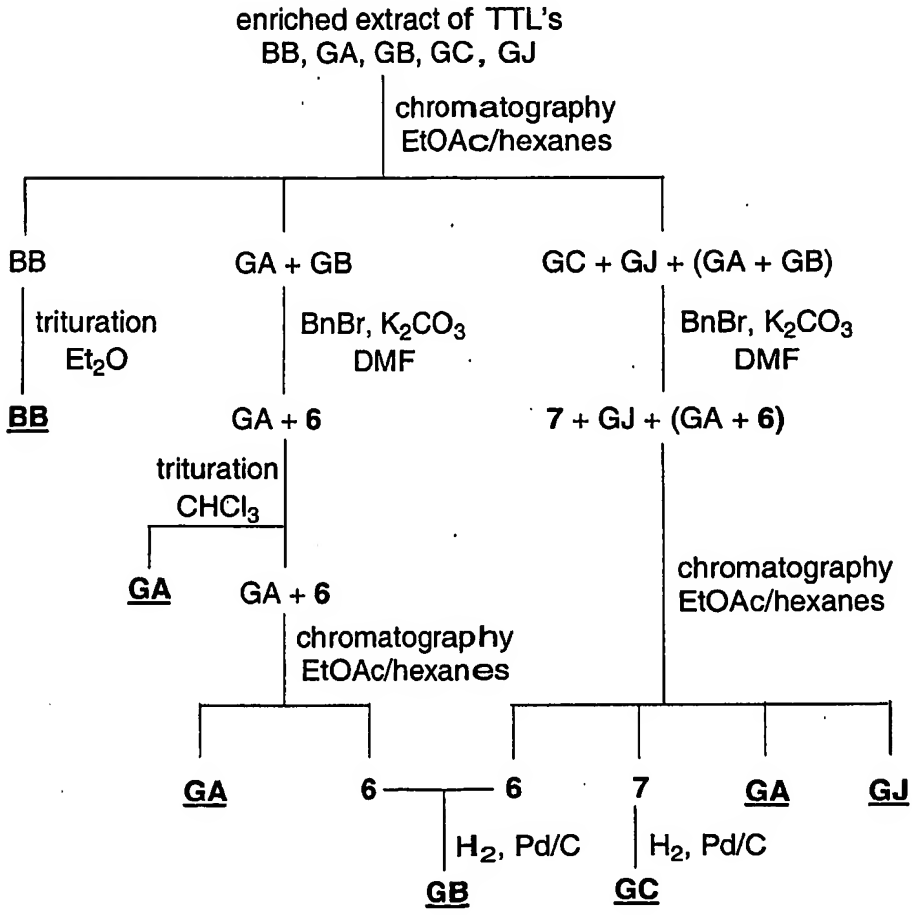
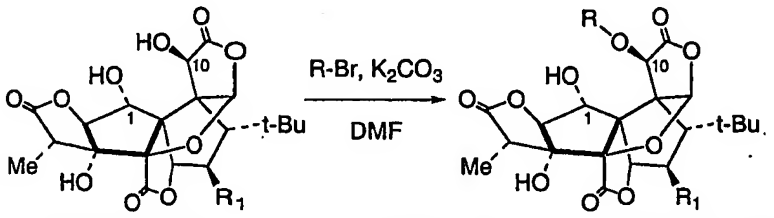

enriched extract of TTL's
BB, GA, GB, GC, GJ
chromatography
EtOAc/hexanes
BB
GA + GB
GC + GJ + (GA + GB)
trituration
Et2O
BnBr, K2CO3
DMF
BnBr, K2CO3
DMF
BB
GA + 6
7 + GJ + (GA + 6)
trituration
CHCl3
GA
GA + 6
chromatography
EtOAc/hexanes
chromatography
EtOAc/hexanes
GA
6
6
7
GA
GJ
H2, Pd/C
H2, Pd/C
GB
GC

FIGURE 3

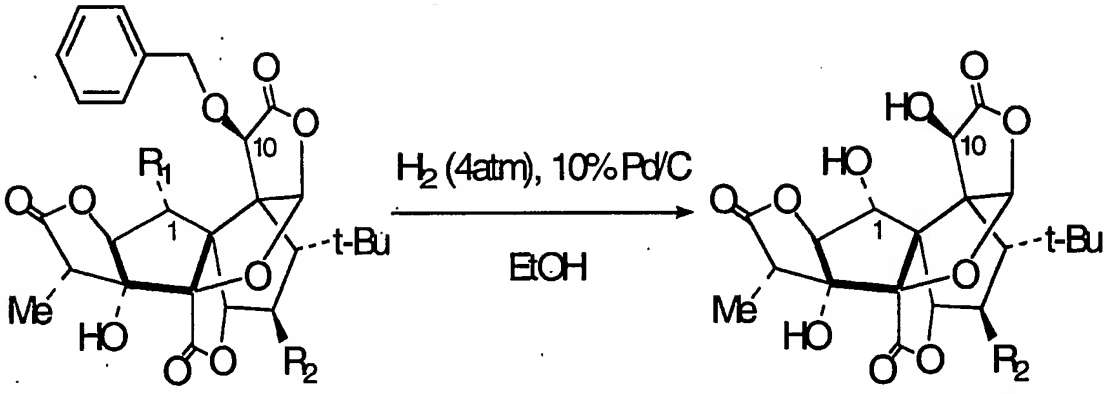


R_1 = -H (GB)
R_1 = -OH (GC)

Reaction conditions:	alkyl halide (10eq.)	K_2CO_3 (10eq.)	DMF, 0.5 – 10 h, r.t.
R	ratio 10-O/1-O in GC[a]	separation of the mixture[b]	deprotection method
benzyloxymethyl-	1.4 : 1[c]	+	H_2, Pd/C, 1 atm
benzyl-	14 : 1	++	H_2, Pd/C, 4 atm
p-MeO-benzyl-	20 : 1	– –	CAN or H_2, Pd/C, 1 atm
allyl-	5 : 1	– –	1) *t*-BuOK, 100°C; 2) 0.1 N-HCl, reflux
cinnamyl-	5 : 1	– –	1) *t*-BuOK, 100°C; 2) 0.1 N-HCl, reflux

[a] ratios for GB were similar or better;
[b] + = good, - = bad;
[c] (Corey, 1992)

FIGURE 4

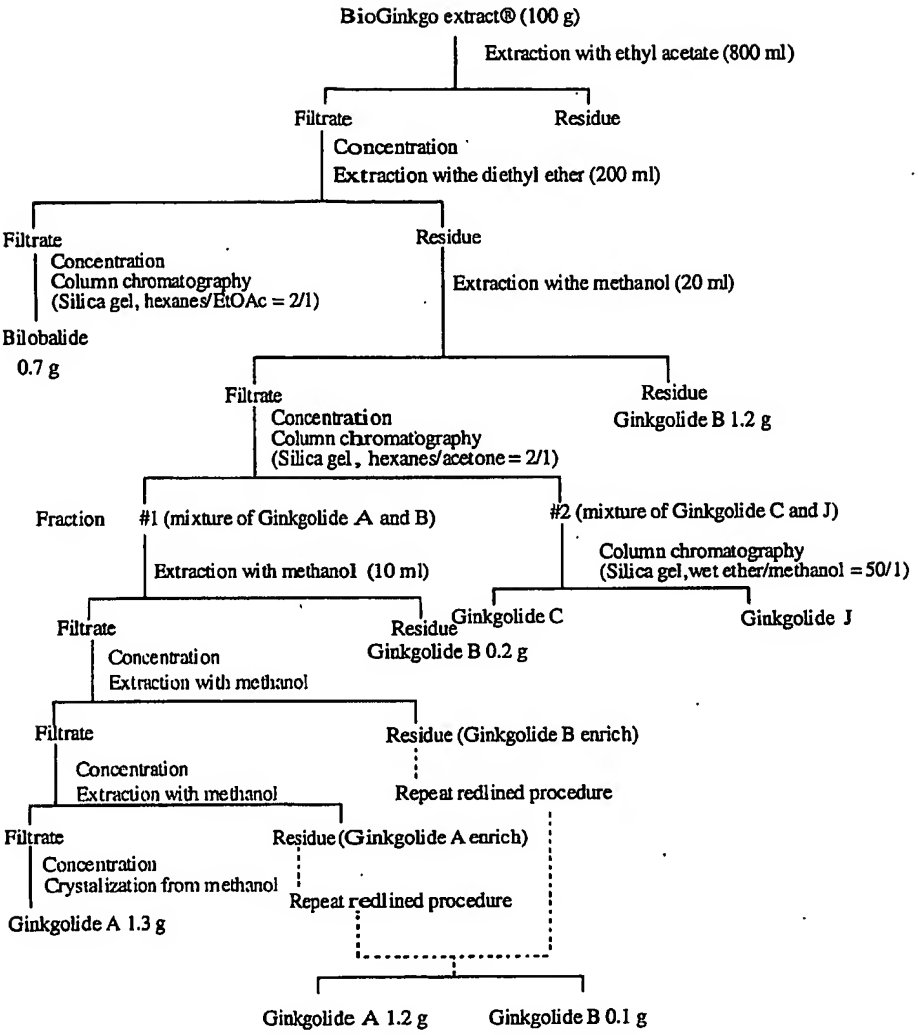


$R_1 = -OH, R_2 = -H$ (6)
$R_1 = R_2 = -OH$ (7)
$R_1 = R_2 = -H$ (8)

$R_2 = -H$ (3, GB)
$R_2 = -OH$ (4, GC)

Compound **8** - no reaction.

FIGURE 5


BioGinkgo extract® (100 g)
Extraction with ethyl acetate (800 ml)
Filtrate
Residue
Concentration
Extraction withe diethyl ether (200 ml)
Filtrate
Residue
Concentration
Column chromatography
(Silica gel, hexanes/EtOAc = 2/1)
Extraction withe methanol (20 ml)
Bilobalide
0.7 g
Filtrate
Residue
Ginkgolide B 1.2 g
Concentration
Column chromatography
(Silica gel, hexanes/acetone = 2/1)
Fraction
#1 (mixture of Ginkgolide A and B)
#2 (mixture of Ginkgolide C and J)
Column chromatography
(Silica gel, wet ether/methanol = 50/1)
Extraction with methanol (10 ml)
Ginkgolide C
Ginkgolide J
Filtrate
Residue
Ginkgolide B 0.2 g
Concentration
Extraction with methanol
Filtrate
Residue (Ginkgolide B enrich)
Concentration
Extraction with methanol
Repeat redlined procedure
Filtrate
Residue (Ginkgolide A enrich)
Concentration
Crystalization from methanol
Repeat redlined procedure
Ginkgolide A 1.3 g
Ginkgolide A 1.2 g
Ginkgolide B 0.1 g